

PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTONNEW GENERA AND SPECIES OF CHORDEUMOID MILLIPEDES  
IN THE UNITED STATES, AND NOTES ON SOME  
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The millipeds of Suborder Chordeumoidea are of particular interest because of the many modifications of the ninth legs of the males. These legs, which are referred to as posterior gonopods by European writers, vary from the normal seven segments down to seemingly functionless stubs coalesced with the sternite of the seventh segment. The body length may be as little as 2 or 3 mm; the number of postcephalic segments may be 20, 26, 28, 30, or 32; and the color may vary from white to dark brown.

Except for the excellent monograph by Cook and Collins (1895), the the only published works on chordeumoid millipeds in the United States are a few short papers and descriptions of a few species in papers dealing chiefly with other groups of Diplopoda. The families, in general, remain poorly defined.

The specimens described in this paper came either from the author's private collection or from the collection of the Illinois Natural History Survey. Holotypes of *Trigenotyia parca*, *Ofcookogona steuartae*, and *O. alia* will be deposited in the collection of the Philadelphia Academy of Science. Paratypes of these and the holotype of *Flagellopetalum stannardi* are in the collection of the Illinois Natural History Survey. Unless stated otherwise, collection was by the author.

Cohort Trachyzona

Family Rhiscosomidae

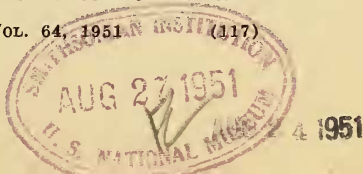
*Tingupa pallida* Loomis

*Tingupa pallida* Loomis, 1939, Bull. Mus. Comp. Zool., vol. 86, no. 4, p. 185, fig. 12; 1943, *ibid.* vol. 92, no. 7, p. 387, fig. 7.

*Record.*—Two males and a female from Collinsville, Ill., by T. H. Frison, Feb. 9, 1944, from ground cover. Previous records of this species are based on collections from Missouri caves (Loomis 1939, 1943; Hubricht 1950).

*Tingupa* sp.

*Record.*—A female of 26 segments, length 4.8 mm, width 1.3 mm, South Fulton, Tenn., by L. J. Stannard, June 30, 1948, Acc. No. 49462. This is the first record of this genus from a Southern state.



Cohort Xestozona  
Family Conotylidae*Conotyla specus* Loomis

*Conotyla specus* Loomis, 1939, Bull. Mus. Comp. Zool., vol. 86, no. 4, p. 184, fig. 11.

*Records*.—Two males and a female from Mt. Carroll, Carroll Co., Ill., by H. H. Ross and M. W. Sanderson, Dec. 6, 1945; one male and two larvae from Echert's Cave, Burksville, Ill., by B. D. Burks, Jan. 24, 1947. Previous records of this species are based on collections from Missouri caves (Loomis 1939, 1943; Hubricht 1950).

*Trigenotyla*, new genus

Differs from both *Tynopus* Chamberlin 1940 and *Conotyla* Cook and Collins 1895 in that the basal segment of the ninth legs of the male is prolonged ventrad beyond its articulation with the smaller second segment. Ocelli about 15, in a triangular area; antennae slightly clavate; no promentum. First and second legs of male with six segments, the tarsi hispid; second through fifth legs with minute vesicles on tarsi; legs six and seven modified. Tergites smooth, keels about as wide as long on the middle segments. Each gonopod, as in several *Conotyla* species, consists of a ventral lamella and of a dorsal, plumose piece. Thirty segments. Body small as in *Tynopus*.

*Genotype*.—*Trigenotyla parca*, n. sp.

*Trigenotyla parca*, n. sp.

Figs. 1-5

*Male holotype*.—Color light amber; antennae brown, ratio of length of segments 1 through 7 4:10:22:13:20:7:6; ocelli black, in rows of 1, 7, 5, 3, 1; vertex highly rounded between eyes; anterior margin of colum convex, posterior margin straight, its keels rounded; keels prominent on anterior and middle segments, becoming smaller posteriorly and absent from last 3 or 4 segments; on the middle body segments the keels are about as wide as long, the anterior corners rounded and the posterior right angles; segmental setae needle like, the length from 0.3 to more than 1.0 mm, set in relatively large tubercles in straight or curved line.

First and second legs slightly shorter than others; third segment of sixth and fourth segment of seventh legs with a low, proximal swelling and a distal projection; fourth segment of sixth legs bowed and slightly enlarged proximad (Figs. 1, 2). Ninth legs but slightly visible *in situ*; the basal segment, a coxoprefemur, is L-shaped, the vertical branch continuing beyond its articulation with the second segment, distally truncated and pigmented; the second segment is smaller, clawless, slightly clavate, and the distal end is darkly pigmented (Fig. 3). Coxae of tenth and eleventh legs slightly swollen and with the usual gland openings.

Each gonopod consists of two regions: the ventral region is a lamella broad at the base and deeply bifid distally, the anterior division wider and longer than the posterior and serrated along the posterior margin; the dorsal region consists of a shorter, plumose piece (Figs. 4, 5).

Length about 6.5 mm, width 0.9 mm.

*Type locality*.—Blue Spring, Carroll Co., Ark., 6 males and 6 females, Oct. 29, 1949. Collections have been made at several places in Washington County also.

*Trichopetalum unicum* Cook and Collins

*Trichopetalum unicum* Cook and Collins, 1895, Ann. N. Y. Acad. Sci., vol. 9, p. 66, fig. 51.

*Records*.—Rocky Branch, Clark Co., Ill., 1 male by H. H. Ross, Acc. No. 49554; Spring Hill Park, Ind., 1 male, 5 females by T. H. Frison, Feb. 25, 1944; several places in Washington and Logan counties, Arkansas.

*Trichopetalum cornutum* Cook and Collins

*Trichopetalum cornutum* Cook and Collins, 1895, *ibid.*, p. 66, figs. 46-49.

*Records*.—Marshall, Ill., 1 male, 4 females, several larvae by T. H. Frison, Jan. 1, 1933, sample no. 32; Donaldson, Ill., 3 males by L. J. Stannard, Oct. 19, 1947; Turkey Run State Park, Montgomery Co., Ind., 3 males, 4 females by M. W. Sanderson, Oct. 10, 1948, Acc. No. 49524.

*Trichopetalum lunatum* Harger

Figs. 6-8

*Trichopetalum lunatum* Cook and Collins, 1895, *ibid.*, p. 63, figs. 52-54.

Four males and several females collected by L. J. Stannard, Telford, Pa., Oct. 1, 1947, Acc. No. 4943, are believed to be Harger's poorly described *T. lunatum*. It is regretted that no specimens of *T. album* are available for comparison, because the Pennsylvania specimens are very similar to that species. The two are probably indistinguishable as to body length, color, ocelli, etc. The ninth legs of *lunatum* (Fig. 6) have no processes on the coxosternal region; if the figure shown by Cook and Collins (1895, fig. 43) is correctly drawn, *album* has prominent triangular processes in that region. The telopodites of the gonopods are contiguous only at the base and at the distal end. They extend to the base of the eleventh legs. Laterad the basal two-thirds of the telopodite is finely pubescent; mesiad about midway of its length are three stout setae; on its mesial surface is a thin, triangular lobe, visible *in situ* and not shown in the figure for *album*; the end is flattened (Fig. 7) and hamate. Springing from near the base of the telopodite, mesiad, is a single plumule; there are two of these in *album*. The dorsal lamella, with two triangular pieces on the posterior margin, appears in *album* to have only one triangular piece.

**Flagellopetalum**, new genus

Resembles *Trichopetalum* in the small size of the body, in having 28 segments behind the head, in the presence of keels on most body segments, the conspicuous needle-like segmental setae, the slightly clavate antennae, the triangular promontum, the presence of short, stiff setae on the mesial surface of the tarsi of the first and second legs, in the smaller size and absence of a segment in those legs, and in that the ninth legs of the male consist of only two segments, the basal of which has no lamella or processes. It differs from *Trichopetalum* in that the ocelli are fewer and in one row, the sixth legs of the male have a lobe on the

fourth segment, the second segment of the ninth legs is less swollen and has no terminal, chitinized knob, and the gonopods have no plumose piece. The gonopods consist of three pairs of lamellae, of which the dorsal pair is coalesced at the base and terminates in a pair of fine, flagelloid processes.

*Genotype*.—*Flagellopetalum stannardi*, n. sp.

**Flagellopetalum stannardi**, n. sp.

Figs. 9-12

*Male holotype*.—White with light gray bands across the prozonites and metazonites. Eyes composed of five ocelli arranged in a single curved line on a darkly pigmented horizontal band. Keels of middle body region as shown in figure 9, decreasing in size posteriorly, the last three segments without keels. Segmental setae needle-like, relatively long. Surface of tergites appear lightly longitudinally striate when viewed under high magnification.

As shown in figure 10, the fourth segment of the sixth leg bears a small lobe on the mesial surface. No other anterior legs are modified except the first and second, as explained in the definition of the genus. The tenth and eleventh legs have the usual coxal openings. The ninth legs are shown in figure 11; they are not inflated and the coxoprefemur, which is distinct from the sternite, bears no processes.

The gonopods (Figs. 11, 12) consist of three pairs of lamellae: the dorsal lamellae, probably sternites, are coalesced at the base, but distally they are flagelloid; both surfaces of the middle lamellae are finely hispid, and laterally each bears a curved, aciculate process; the ventral lamellae bear a pair of sharp spines of the ventral surface and acute lobes on the distal margin.

*Length* 4.5 mm.

*Type locality*.—Rocky Branch, Clark Co., Ill. The male holotype and a larva were collected Oct. 19, 1947 by L. J. Stannard, for whom it is a pleasure to name this species.

Family Cleidogonidae

**Ofcookogona**, new genus

Resembles *Tiganogona* Chamberlin 1928 in the close union between the dorsal branches of the gonopods and the coxal region of the ninth legs and in the presence of a clavate sternal process anterior to the ninth legs. It differs from *Tiganogona*, in which the ninth legs appear to consist of five segments, in that those legs consist of the following three segments: a swollen basal segment with lobes; a medial, smaller, spherical segment; and a terminal, minute segment. The male gonopods, which are heavier than in *Tiganogona*, consist of well developed cheirites, a single medial piece, and the usual dorsal and ventral branches. The eyes are triangular, the ocelli black and numbering under 20. Antennae long and slender as is usual in the family. Tergites smooth, no keels, color typical of the family. First and second legs reduced in size. Tarsi of legs three through seven, ten and eleven with papillose cushion on mesial surface. Third segment of eleventh legs of males modified; tenth and eleventh legs with the usual gland opening on the coxae.

*Genotype*.—*Ofcookogona stewartae*, n. sp.

*Ofcookogona steuartae*, n. sp.

Fig. 13

*Male holotype*.—Ocelli in rows of 1, 7, 6, 5, 4, 3, 1. On the proximal end of the medio-caudal surface of the eleventh legs is a cylindrical process. The tenth legs are unmodified. The ninth legs are not visible until the pleura are removed; the inflated basal segment has two lobes on the dorsal surface; the spherical second segment and the minute terminal segment are difficult to distinguish from the basal segment. The presence of a terminal claw is doubtful. Slightly anterior to the ninth legs is a clavate sternal peg, which is about two-thirds as long as the two finger-like coxal lobes adjacent to it.

*In situ*, lateral view, the ventral branches of the gonopods appear almost parallel to the longitudinal body axis, reaching to the base of the eleventh legs; in ventral view they appear as two elongated wedges, the apices contiguous and the bases well separated. The distal third of each ventral branch bears along the dorsal surface a thin lamella, its dorsal margin finely serrated. The dorsal branches of the gonopods are falcate rather than clavate, as in many species of this family. The cheirites, the triangular lateral pieces, are well developed.

*Length* 13 mm, width 1.3 mm.

*Type locality*.—Greenwood, Sebastian Co., Ark. The male holotype, the only specimen, was collected Nov. 26, 1950, by Miss Ruth Steuart, for whom it is a pleasure to name the species.

*Ofcookogona alia*, n. sp.

Figs. 14-16

Easily separated from *O. steuartae* by the absence of a serrated margin on the ventral branch of the gonopods and by difference in the shape of the ninth legs.

*Male holotype*.—Ocelli in rows of 1, 7, 6, 5, 4, 2. Modification of legs as in *steuartae*.

The ninth legs are not as inflated as in *steuartae*. From the cephalic surface of the coxal region of each one a finger-like lobe passes up to the base of the ventral branch of the gonopod. A smaller lobe is embraced medially by the dorsal branch of the gonopod. The small, globose, darkly pigmented segment appears to be the second; distal to it, and easily overlooked, is a minute knob, the third segment probably. Slightly anterior to the ninth legs is the sternal peg, not broadly clavate as in *steuartae*, the surface finely and uniformly roughened and the length about half that of the coxal lobes adjacent to it (Fig. 14).

*In situ*, ventral view, the ventral branches of the gonopods are contiguous at the base and separate distally in a V-shape; the apices rest on the ventral surface of the coxae of the tenth legs. In lateral view each gonopod, as in *steuartae*, is seen to be composed of four pieces (Fig. 15): the ventral, broadly curved piece; the dorso-lateral triangular cheirite with a row of a few stiff setae; the dorsal arcuate piece, spatulate in dorsal view (Fig. 16), which embraces the medial sternal peg of the ninth segment; and the mesial, excavated piece.

*Length* about 11 mm.

*Type locality*.—Junction City, Union Co., Ark. Two males and a female were collected from a pine-hardwood forest Dec. 25, 1950.

*Tiganogona* Chamberlin

Figs. 17 and 18

*Tiganogona* Chamberlin, 1928, Ent. News, vol. 39, p. 154.*Tiganogona* Causey, 1950, Jour. Wash. Acad. Sci., vol. 41, no. 2, p. 82.

Figures 17 and 18 show the right ninth leg and the end of the ventral branch of the right gonopod of a male paratype from St. Charles, Mo. The dorsal branches of the gonopods are similar to those of *Tiganogona moesta* Causey.

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## EXPLANATION OF FIGURES

## Plate X

*Trigenotyia parca*, male paratype.

- Fig. 1. Second, third, and fourth segments of sixth leg.
- Fig. 2. Fourth segment of seventh leg.
- Fig. 3. Caudal view of right ninth leg.
- Fig. 4. Ventral view of right gonopod.
- Fig. 5. Lateral view of right gonopod.

*Trichopetalum lunatum* Harger, male.

- Fig. 6. Caudal view of right ninth leg.
- Fig. 7. End of telopodite of right gonopod.
- Fig. 8. Dorsal view of left gonopod.

*Flagellopetalum stannardi*, male holotype.

- Fig. 9. Right side of tergite of twelfth segment.
- Fig. 10. Right sixth leg.
- Fig. 11. Right ninth leg and gonopod, caudal view.
- Fig. 12. Dorsal view of gonopods.

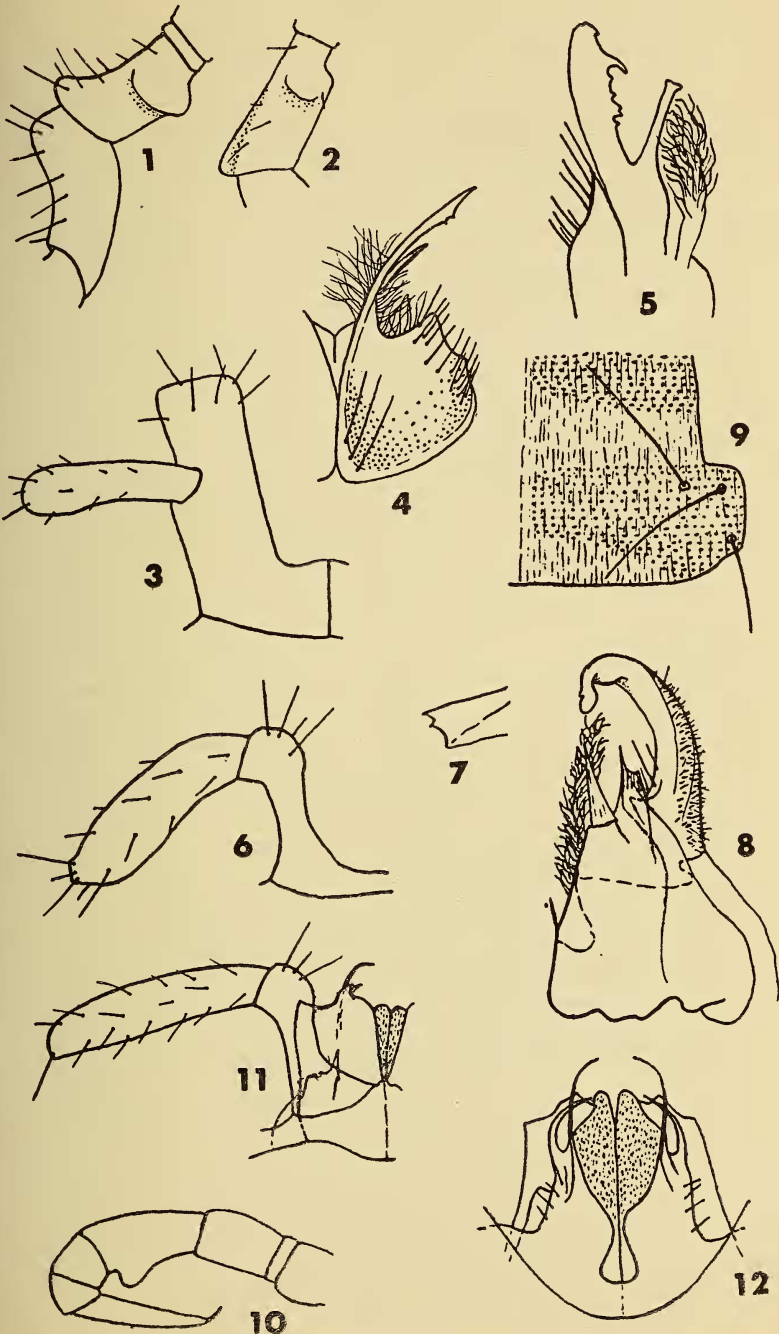


PLATE X

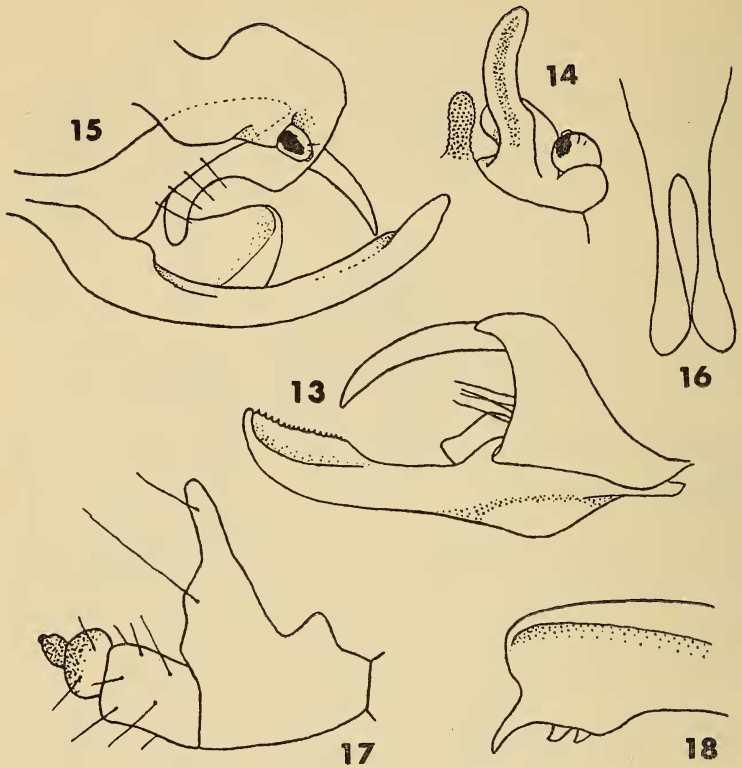


Plate XI

*Ofcookogona steuartae*, male holotype.

Fig. 13. Lateral view of left gonopod.

*Ofcookogona alia*, male paratype.

Fig. 14. Anterior view of sternal peg and right ninth leg.

Fig. 15. Lateral view of left ninth leg and gonopod.

Fig. 16. Dorsal pieces of gonopods.

*Tiganogona brownae* Chamberlin, male paratype.

Fig. 17. Caudal view of right ninth leg.

Fig. 18. End of ventral branch of right gonopod.